THE DESIGN OBSERVER GROUP

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Infrastructural Optimism

Throughout American history, large-scale public works have represented our collective optimism. The Interstate highways unify the country not only by connecting it coast to coast but also by elevating speed and mobility to the status of national entitlement. Similarly, we expect our networks of local streets to serve us functionally, formally and symbolically — to establish a sense of order and hierarchy, to orient us within cities and operate as spaces for social connection. Together high-speed expressways and city streets bookend our understanding of roads in the production of public space.

The restoration of mobility infrastructure can also play a significant role in the wake of catastrophe. Infrastructure reconstruction is often the first, most obvious response to catastrophe. Following the 1995 earthquake in Northridge, California, highways were rebuilt ahead of schedule and under budget; this both expedited and symbolized a return to normal, a restabilization of daily life. The same can be said for the restoration of public transit in Lower Manhattan after September 11, where the quick resumption of bus and subway service signaled the city's resilience.

Infrastructure reconstruction can also inspire transformation. In this fuller role, infrastructure can work to link the collective and the individual through built form, becoming a formidable tool of urban reinvention.

Flood zone and principal sites in New Orleans. Diagram by author from satellite image.

Interstate 10
In New Orleans, since the epochal Hurricanes Katrina and Rita of 2005, it is the the *failure* of infrastructure

reconstruction that has perpetuated the absence of a recovery narrative. [1] A vastly disproportionate share of the city's destruction and loss has been borne by poor, mostly African-American residents, exposing an already divided city. In the days before and during the disaster, this divide separated the mobile and the immobile — those who could leave and those left behind. Most evacuees left by private automobiles and drove west along I-10, toward Houston. Most of those who stayed — an estimated 150,000 — were car-less, and some were immobilized by age, illness or incarceration. [2]

Interstate 10, the southernmost east-west high-speed road in the country, shows how infrastructure can embody the promise of recovery and the despair of neglect. I-10's twin-span bridge over Lake Pontchartrain, for instance, was destroyed by the hurricane's storm surge; but unlike much of the city's public-transit infrastructure, it was repaired so rapidly that the contractors received a $1.1-million bonus. [3] A trucker interviewed by the *New York Times* called the speedy repairs "between exceptional and heroic." [4] Yet this repair, located outside the city, provided little for residents; it didn't serve them functionally and it failed to instill a sense of collective optimism.

And in fact, I-10 came to embody the city's failure. The images that endure from 2005 are not of the rebuilt bridge, but of a highway offering no escape for an abandoned population. The bleakest images showed dead citizens floating among its support columns or lying covered by tarps on its shoulders. Today, the slow return of public transit is keeping those without automobiles immobilized, and the Interstate is sheltering a growing homeless population beneath its elevated sections. [5]

In an attempt to promote recovery, various government agencies have proposed plans for road repairs, increased transit diversity, and a new "two-tiered" evacuation plan. More emblematically, perhaps, the Unified New Orleans Plan has proposed removing portions of the elevated highway. [6] At best this partial erasure might open up the possibility of reconsidering mobility and the public realm in the postmillennial city. The inner-city Interstate has long epitomized the conflict between progress and urban vitality. The widespread destruction in New Orleans offers planners the chance to seek new models that recognize the power of public infrastructure to spark postdisaster recovery.


Left: New Orleans on August 29, 2005, showing Interstate 10 at West End Boulevard, looking toward Lake Pontchartrain. AP Photo by Kyle Niemi, U.S. Coast Guard.
Right: Alex Clay, homeless and living under the Claiborne Avenue overpass near Canal Street, lost his Lower Ninth Ward home and all his possessions to Hurricane Katrina. Photo by Chris Granger, Times-Picayune.

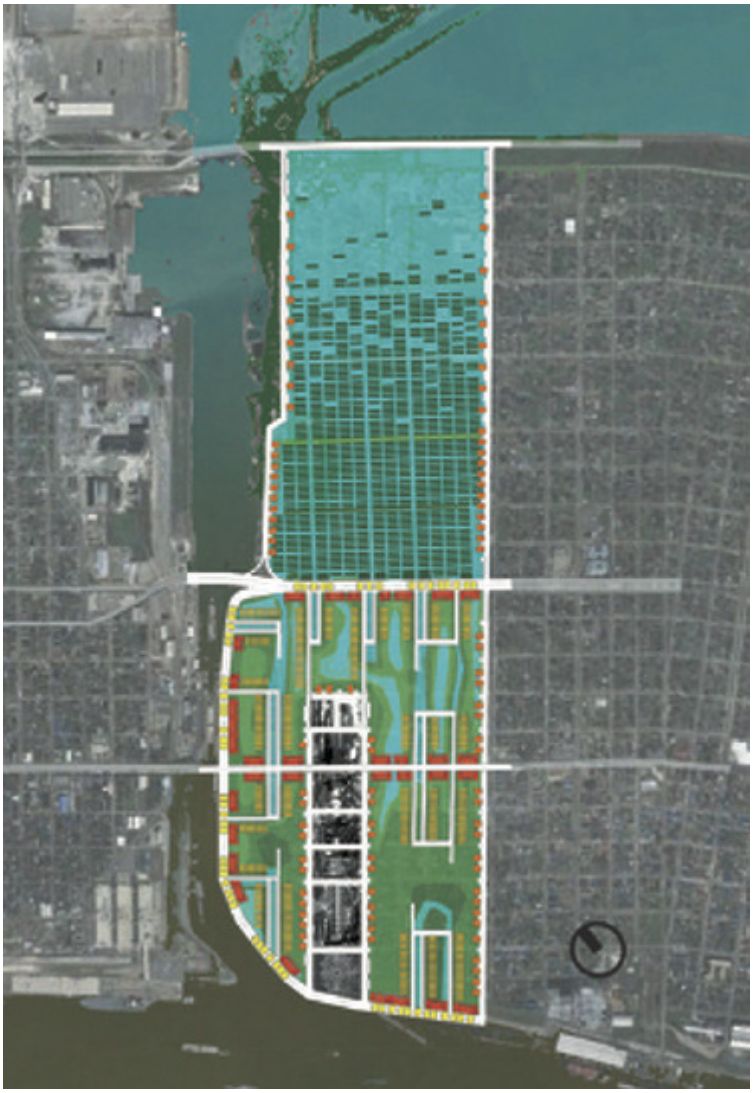
Model Infrastructures

There are just a few models of visionary infrastructural thinking. During the Great Depression, the Works Progress Administration recognized the value of mobility to social, psychological and economic recovery and

devoted nearly one-third of its $4.8 trillion to highway, road and street projects. [7] The results were particularly pronounced in New York City, where Mayor Fiorello LaGuardia, assisted by his dynamic chief of public works, Robert Moses, managed to spend an impressive one-seventh of the total 1935 and '36 WPA budgets. In those two years alone, Moses directed $113 million to the New York Department of Parks, which reshaped the public realm with new beaches, playgrounds, swimming pools, bathhouses and zoos. [8] As Marta Gutman noted: "Moses and his colleagues were lauded for putting ordinary people first; for celebrating them with remarkable, technically sophisticated public architecture; for democratizing access to recreation; and for using New Deal dollars to run play schools and day camps and to offer swimming lessons at the pool complexes. . . . The architectural press also chimed in, suggesting that innovative design and breadth of social vision went hand in hand. [9]

Moses's true brilliance, however, lay in his understanding the power of mobility in the modern city. The new recreation facilities improved the lives of New Yorkers, but it was the expressways — for good and bad — that transformed the city. Marshall Berman captured this paradox when he noted, "Moses was destroying our world, yet he seemed to be working in the name of values we ourselves embraced." Moses's WPA projects "expressed a vision — or rather a series of visions — of what modern life could and should be." [10]

First lionized and then vilified, Moses and his impact are again being reconsidered. His emphasis on transportation connected the colonial origins of the American road with Corbusier's Radiant City and the obsessions of 1960s collectives such as Ant Farm and Archigram. [11] Contemporary projects like Manhattan's High Line perpetuate this lineage. [12] So too does the commitment to new transit infrastructure at the World Trade Center site. Unlike the mediocre and incomplete response in New Orleans [13], New York spent $323 million to build a temporary PATH terminal, merely a down payment on the forthcoming $2 billion, Calatrava-designed transit hub that will replace the old station beneath the twin towers. [14]



NOkat proposal by emerymcclure architects. Site plan.

The Street

The Pink Project, initiated by the actor Brad Pitt's Make It Right Foundation, tried to serve as this kind of down payment in the Lower Ninth Ward of New Orleans. The assembling of house-shaped steel frames covered in hot pink tarps represented dollars raised toward construction. Although the project goals have changed, these structures were visible reminders of the commitment to "make it right" for hundreds of homeless families. [15]

Now, as the first real houses to come from the Make It Right effort are being built, the street-scale infrastructural trauma of New Orleans is being addressed. In the next five years, the federal Submerged Roads and Damaged Roads programs, along with the Louisiana Department of Transportation, will spend $360 million on road reconstruction. [16] Although hardly a radical reimagining, the work project provides cause for optimism. For example, city agencies are cooperating to lay utility lines prior to repaving to prevent the destructive and costly practice of digging up newly paved streets. To promote transit diversity, roads will have designated bike lanes — a simple addition, reflecting attention to inclusivity. [17]

Such small-scale initiatives are critical in a place where street life is integral to the local culture. At a civic scale, parades and funerary processions are an important manifestation of cultural affiliation in New Orleans. And at a neighborhood scale, the relation between street and stoop or porch allows cross-generational, neighborhood interaction. Streets in the denser neighborhoods of New Orleans resemble those Greenwich Village streets described by Jane Jacobs in the early 1960s, where "eyes on the street" built communal ties and a sense of public ownership, and where an "intricate, almost unconscious network of voluntary controls and standards" promoted a self-regulated yet flexible environment. [18]

The eyes-on-the-street theory assumes a densely populated, pedestrian-oriented and mixed-use neighborhood. But it also relies on structures that allow direct view and mediated verbal, visual and physical contact between semi-protected private spaces and public sidewalks and streets. The slightly elevated traditional New Orleans porch provides such a space; narrow front setbacks established a socially accepted line beyond which lot and house were considered private.

Post-Katrina planning and new building codes have, however, altered the relationship between the house and the ground, forcing a renegotiation of spatial relationships between porch, yard and sidewalk/road. In Make It Right's prototype houses, the typical five-foot-high elevation above the ground plane has been increased (to eight feet) to create space under the houses for parking, mechanical systems, or storage. [19] The unintentional effect, though, is to disrupt earlier patterns of neighbor-to-neighbor and neighbor-to-stranger interaction. The edges of the old informal social network are thus fractured. The porch becomes a platform too high above the ground plane for real interaction with sidewalk and road.

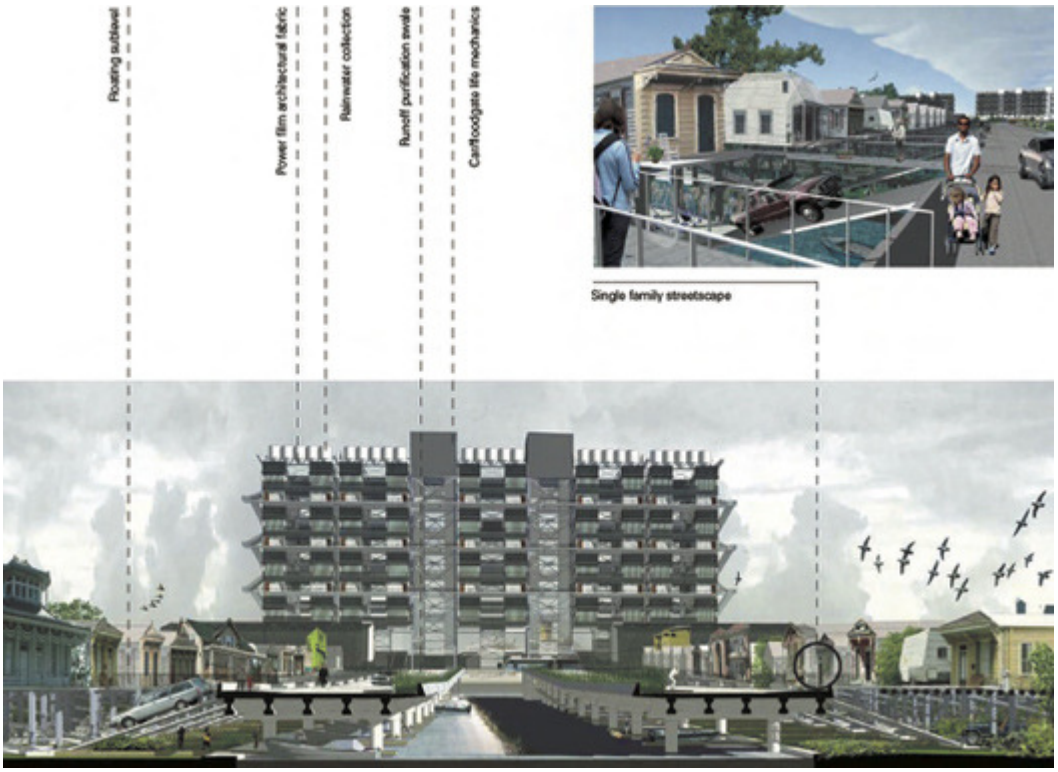
Some of the Make It Right house designs articulate the front stair as an extended sequence between ground and porch. But the overall effect is still to disintegrate the relationships that once defined the shared public social space of the road. Among the Make It Right prototypes, the proposal by Eskew+Dumez+Ripple is notable for providing a multitiered street front to better contain the public zone and rethicken the semi-public zone. More successful design solutions would more aggressively acknowledge the significance of road/stair/porch as collective and semi-collective space.

The NOkat proposal by emerymcclure architecture recognizes the problem of segregating houses from the ground plane and the value of reimagining their relationship to street infrastructure. [20] Drawing on nearly a decade of studying the local "terra viscus," their proposal creates a secondary, elevated ground plane to maintain the sectional relationship between road, sidewalk, porch and house, while depressing a semi-sacrificial layer of parking, courtyards and garden.

According to emerymcclure: "The terra viscus is a super-saturated soil, one that is never completely solid or liquid, one that is never in stasis, but in a continuous state of being made and being removed. This ground consists of geological, cultural, ecological, and tectonic conditions that interweave and overlap to create a non-repetitive, patterned identity of multiple and hierarchically understood variables." [21] Their premise is that the successful inhabitation of southern Louisiana demands respect for the region's solid/liquid landscape rather than costly and ultimately futile technological resistance. They propose to "reconceive the infrastructure to work with the natural systems." [22] A new infrastructure — combining elevated ground planes, multiple mobility modes and water mediation rather than control — could encourage a symbiosis between the landscape and its inhabitants.

Several integrated layers of roadspace appear in the emerymcclure plan. A causeway on the north works as edge to contain new, denser development and to provide access to water-based transit. The low-speed road

grid that organizes the interior neighborhoods maintains the street as a space for social interaction. And car storage is accommodated in below-street-level areas in the low-scale, mixed-use zones, and on elevated platforms in the higher density towers. At the base of the towers, emerymcclure further proposes a high-speed rail line that, combined with links to water transit, would increase mobility options and access. This multitiered system sees both high-speed and low-speed movement as important to a reimagined public sphere.



NOkat proposal by emerymcclure architects. Infrastructure section and perspective.

A New Era for Infrastructure

In terms of function, efficiency and safety, the American Society of Engineers has rated the quality of America's infrastructure at C and D levels. [23] But what about the contribution infrastructure might make to the design environment? And what of its potential for collective postdisaster recovery?

Traditionally infrastructure has been intended mainly to facilitate the invisible, equitable, and timeless distribution of public resources. The fact that roads are public spaces — unlike, say, water pipes and sewer lines — has mostly been effectively ignored: witness the typical suburban arterial. We have been astonishingly disengaged with the design potential of our our mobility infrastructure, with its potential to become an artful and defining element of the public realm.

To combat the dire state of the national infrastructure, President Barack Obama has created the National Infrastructure Reinvestment Bank, which will augment previous commitments to infrastructure with an additional $60 billion in the next ten years. [24] This allocation is linked, among other programs, to a new stimulus package, which may become a twenty-first-century version of the WPA. As we devise large-scale programs of infrastructure investment,we would do well to consider the lessons of New Orleans. Preventing future disasters is obviously critical, yet the new programs should move beyond the functional to emphasize a vision for infrastructure as civic investment.

Notes

1. The concept of the recovery narrative comes from Lawrence Vale and Thomas Campanella, *The Resilient City* (Oxford: Oxford University Press, 2005).

2. Eliza Johnston and Brendan Nee, "A Methodology for Modeling Evacuation in New Orleans," unpublished paper, University of California, Berkeley, Department of City and Regional Planning, 2006. Available for download at www.bnee.com.

3. Public transit, more frequently used by the less affluent, is still slow to recover. The Regional Transit Authority lost two out of three of its maintenance facilities, 30 of 66 streetcars, and 197 out of 372 buses. More than two and a half years later, the city has restored only 48 percent of public transit routes and the operation of 19 percent of its buses. For recovery statistics, see Amy Liu and Allison Plyer, "A Review of Key Indicators of Recovery Two Years After Katrina," The New Orleans Index (The Brookings Institution Metropolitan Policy Program, 2007).

4. Jonathan Schwartz, "I-10, Another Victim of the Storm, Enjoys a Quick Rebirth," *New York Times*, January 3, 2006.

5. Shaila Dewan, "Resources Scarce, Homelessness Persists in New Orleans," *New York Times*, May 28, 2008.

6. In precedents like Boston's Big Dig, the logistical nightmare of building new transportation infrastructure in a crowded urban core has only partially resulted in functional successes, and still struggles with a symbolism of corruption, over-expen- diture, and faulty workmanship. In New Orleans, however, the recent hurricanes intensified a trend of population loss that has existed since the 1960s. This provides good cause to examine the removal of existing transportation infrastructure in the interest of a more diversely mobile population.

7. Works Progress Administration, Report on the Works Program, (Washington, D.C.: United States Government Printing Office, 1936), pp. 13, 17. This is equal to about $76 trillion today.

8. Marta Gutman, "Equipping the Public Realm," in *Robert Moses and the Modern City: The Transformation of New York* (New York: W. W. Norton & Co., 2007), p. 73.

9. Ibid, p. 81.

10. Marshall Berman, *All That Is Solid Melts Into Air: The Experience of Modernity* (New York: Penguin Books, 1988), pp. 294-95.

11. Archer Butler Hubert in Historic Highways of America, vols. 1-15. (Ohio: The Arthur H. Clark Company, 1902-1905) wrote that the colonial-era Cumberland Road was "our first and only great national road...a thoroughfare which should, in one generation, bind distant and half-acquainted states together in bonds of common interest, sympathy, and ambition."

12. Adam Sternberg, "The High Line, It Brings Good Things to Life," *New York Times*, April 29, 2007.

13. See "Review Roundtable: Is New Orleans a Resilient City?," *Journal of the American Planning Association*, Vol. 72, No. 2 (2006), pp. 245-57. This article also contains a disturbing comparison between reconstruction at the WTC site and in New Orleans, which questions whether New Orleans inhabitants are seen as "undeserving" or too "unsophisticated" to qualify for a response equal to that at Ground Zero.

14. "Calatrava's WTC Transportation Hub Soars," January 22, 2004, on Lower Manhattan.info site, http://www.lowermanhattan.info/news/calatrava_s_wtc_transportation_29863.aspx; and "World Trade Center (Path Station)" at http://en.wikipedia.org/wiki/World_Trade_Center_(PATH_station).

15. Initially, the scattered forms were to be assembled over a six-week period as a direct representation of funding raised for the 150 houses. This goal ended up being rather unrealistic, and as of November, 2008—long after the installation was removed—funding for 85 of the 150 homes is now in place. The timeline has since been adjusted, as have fundraising strategies. The project now serves primarily as branding and public relations device, rather than a strict representation of funds raised.

16. Jaime Guillet, "City Road Construction Moving Into Overdrive," *New Orleans City Business*, Jan. 7, 2008.

17. Emilie Bahr, "$220m in Road Repairs to Include Bike Lanes," *New Orleans City Business*, Sept. 10, 2007.

18. Jane Jacobs, *The Death and Life of Great American Cities*, (New York: Random House, 1961), pp. 29-74.

19. These five- and eight-foot heights are those mentioned by Alejandra Lillo, a partner in the design firm GRAFT, as being the ones they used in their particular Make It Right house design (interview by author, Oct. 11, 2008). The new Advisory Base Flood Elevation (ABFE) varies in actual dimension but is defined, according to FEMA, as "the height at which there is a 1 percent chance or greater of flooding in a given year."

20. NOkat = No Katrina, No Catastrophe, No Category. The NOkat project was originally commissioned by the University of Texas at Austin School of Architecture for their November 2007 symposium, "counterMEASURES." Unlike the Make It Right houses, NOkat was intended to be speculative and visionary at the urban scale. More on the symposium can be found at http://soa.utexas.edu/events/ counterMEASURES/. More on emerymcclure architects can be found at http:// www.emerymcclure.com/.

21. See "Terra Viscus: Hybrid Tectonic Nature," emerymcclure architecture, research report.

22. "Terra Viscus...Terra Accommodo: Writing and Building in the Hybrid Tectonic Nature," emerymcclure architecture, research report.

23. 2005 Report Card For America's Infrastructure, http://www.asce.org/ reportcard/2005/index2005.cfm?pic=3 (accessed Nov. 22, 2008).

24. "Barack Obama and Joe Biden, Strengthening America's Transportation Infrastructure" http://www.barackobama.com/issues/additional/#transportation (accessed Nov. 22, 2008).